



*Odour & Emission Insights*

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April 16, 2026

## Odour control in composting: where it goes wrong in practice

*"If we remove the ammonia, the odour problem is solved."*

It sounds logical. In many cases, this is exactly why a chemical scrubber is installed at composting facilities. However, in practice, we frequently see this assumption lead to disappointment. Ammonia is only part of the problem.

During the composting process, various other components are released alongside ammonia that contribute significantly to **odour perception**. Think of organic compounds and sulphur components; often present in relatively low concentrations, yet decisive for how the surrounding environment experiences the emissions. Consequently, removing ammonia does not automatically mean that odour complaints will disappear.

## The technical reality

What happens technically is at least as relevant. In many systems, an acid stage is used to wash ammonia out of the air. While this is effective for its specific purpose, the air stream is not "clean" after this step. On the contrary: the air still contains fine droplets in which **acid and ammonium** are dissolved. Without additional treatment, these droplets simply exit the stack.

In practice, the impact of this is often underestimated, leading to three major consequences:

- Visible emissions (plumes)
- Residual odour
- Corrosion and fouling of downstream components over time

This is precisely where the difference emerges between systems that comply "on paper" and installations that actually perform in the field.



## The rise of the cross-flow scrubber

We are seeing a steady increase in the use of cross-flow scrubbers within composting processes. This is for good reason. This type of scrubber combines several features that align perfectly with the demands of this sector:

1. **Emissions** remain well below current legal limits.
2. **Air resistance** is relatively low, resulting in lower energy costs.
3. The design is robust and less sensitive to fouling.
4. **Pumps and controls** are housed in a separate compartment, protecting them from weather conditions.
5. **Maintenance** is highly efficient due to ground-level access; you simply step inside the unit for inspection.

This makes the cross-flow scrubber a logical choice for many facilities. However, the type of scrubber alone does not determine the end result. The real question is how the system is integrated as a whole.

The cross-flow scrubber combines all the features that align perfectly with the demands of the composting sector

## The synergy between acid and water stages

At AEC Systems, we choose to equip our composting scrubbers with two washing stages as standard. Not as an optional extra, but as a fundamental requirement for a stable and predictable result.

1. The **first stage** (Acid): Focused on the high-efficiency removal of ammonia.
2. The **second stage** (Water): Acts as a droplet separator and removes the fine liquid particles remaining after the first step.

This setup does more than just further limit emissions; it protects the entire system. Downstream equipment, such as fans, ductwork, and biofilters, remains free from fouling and corrosion.

This directly translates into more stable operations and significantly lower long-term maintenance costs.

## The bottom line

The difference is not found in the first step, but in what you do (or fail to do) immediately after. In practice, that final step determines the ultimate success—not just in measurable emissions, but in how the community perceives your facility.

The question is simple: are you looking to meet a minimum emission limit, or do you want to truly prevent odour complaints?

That distinction determines how complete your solution needs to be.

